

**ABSTRACT**

Known method suitable for implementation in a computer program product for VCT closed-loop control system generally includes an integrator to eliminate the steady state error. A novel method suitable for implementation in a computer program product includes a set point filter as well to reduce the closed-loop control overshoot. Low cam torque frequency can reduce the stability of a closed-loop control system when combined with the integral action, and it can also compromise the effect of set point filter. This novel method addresses these two issues by identifying the cam torque direction and pausing control updating when there is no torque available at the desired direction.